

TRANSFORMATION OF TOXIC WASTEWATER SEDIMENTS INTO ENVIRONMENTALLY FRIENDLY FERTILIZERS

G. E. Merzlaya and R. A. Afanas'ev

Federal State Budget Scientific Institution “Pryanishnikov All-Russian Scientific Research Institute of Agrochemistry”, Moscow, Russia, *e-mail: lab.organic@mail.ru

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Abstract – The results of research on transforming Moscow city industrial-municipal wastewater sediments into novel environmentally friendly fertilizers are presented. A comparative study examining efficiency of long-term use of the composts prepared by mixing sewage sludge with wood shavings was performed in field experiment between 2000 and 2017 at two levels of doses in comparison to the results for the traditional organic fertilizer – barnyard manure. The use of composts resulted in an increase of crop yield for perennial grasses with an average increment in the range of 13 to 60% relative to blank experiment over the years of research, in dose-dependent manner. An environmentally safe dose of applying new fertilizer based on sewage sludge was found to be 10 t/ha of dry weight for perennial grasses, the dose provided avoiding risk of soil and plants' contamination with heavy metals.

Keywords: utilization, composts based on industrial-municipal wastewater sediments, perennial grasses, crop yield, soil, heavy metals, permissible level, fertilizers.